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INCIDENCE OF NOSOCOMIAL PNEUMONIAS AMONG 1788 VENTILATED PATIENTS IN 6 ICU ACCORDING TO THE TYPE OF HUMIDIFICATION USED

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The incidence of nosocomial pneumonias (NP) was studied for 24 months in 6 ICU among 1 788 ventilated patients having stayed more than 48h. Care, sampling, and bacteriological procedures had been previously standardized in all ICUs and laboratories. Criteria of pneumonia required always significative bacteriological data.
211 patients (11.8%) had 250 NP (13.7 per 1 000 days of ventilation). The mean age of the patients was 60.9, mean SAPS II 42.3, mean Apache II 22.4, mean length of stay 30.9 days, mean duration of ventilation 23.2 days; 39.8% died in the ICU; the mean occurence delay of pneumonias was 14.7 days after admission.
• 373 patients from 2 hospitals (group H) were ventilated with humidifiers (Bennett cascade, or Fischer-Paykel). The ventilator tubes (disposable or not) were changed every week.
• 1 415 patients from 4 hospitals were ventilated through disposable heat and moisture exchangers (mainly DAR Hygrobac), changed every day.
There were no significant differences between the 2 groups as for Apache II, mean length of stay, mortality, mean duration of ventilation, type of bronchial sampling used, and mean occurence delay of NP (18.5 days in group H, vs 13.8 in the other group, $p < 0,11$). The mean age only was a little lower in group H (58.6 vs 61.0, $p < 0,03$).
There were highly significant differences between the 2 groups as for:
- the percentage of patients having a NP (7.8% in group H, vs 13.0% in the other group, $p < 0.01$),
- the Gram positive cocci pneumonias (29.4% in group H, vs 50.9% in the other group, $p < 0.02$),
- the Pseudomonas pneumonias (58.8% in group H, vs 30.8% in the other group, $p < 0.001$), and the Acinetobacter pneumonias (20.6% in group H, vs 9.8% in the other group, $p < 0.06$). The difference was extremely significative if the last two were registered together (79.4% in group H, vs 40.7% in the other group, $p < 0.000\ 1$).

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NOCARDIOSIS: CLINICAL MANIFESTATIONS OF THE SEVERE FORM OF THE DISEASE

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OBJECTIVES: Nocardiosis is a rare infectious suppurative disease and it has subacute or chronic evolution. Occasionally, it has a fulminant course, affecting lungs and/or central nervous system with high mortality.
METHODS: We have studied 22 consecutive cases of Nocardiosis; 14 males, 8 females; mean age 50±20 years. In all patients (pts) Nocardia was isolated from one or more clinical samples.
RESULTS: In 15/22 pts (68%) there was a chronic underlying disease or pts were receiving immunosuppressive treatment: AIDS 2/15, neoplasia 4/15, renal transplantation 2/15, and chronic obstructive pulmonary disease 7/15. Clinical manifestations of Nocardiosis were less severe in 16/22 pts (73%): septic syndrome 5/16 (all with positive blood cultures), chronic pulmonary infiltrates 5/16, skin abscesses 6/16 (two pts had an ulterior dissemination). In 6/22 pts (27%) the infection had a severe and fulminant course with multiorganic involvement: acute pneumonia 4/6, brain abscess 4/6 (drainage of cerebral abscesses was attempted in 2/4 pts) and septic shock 2/6; all pts had an underlying severe disease and 3/6 pts were receiving immunosuppressive treatment; all pts (6/6) received antibiotic treatment and none of them survived. Nocardia was cultured from the blood of 8/22 pts (36%). *Nocardia asteroides* was identified in 73% of pts, *Nocardia sp* in 23% and *Nocardia caviae* in 4%. All of the 22 pts received antibiotic therapy; and drainage of the purulent collection at different sites was necessary in 6/22 pts (27%).
CONCLUSIONS: Nocardiosis is associated to an underlying chronic disease in 68% of pts. Nocardia was isolated from blood cultures of 36% pts (75% of pts had less severe clinical manifestations of the disease). Severe fulminant Nocardiosis was developed in 27% of pts, with central nervous system involvement, pneumonia and/or septic shock; all of them had other serious underlying diseases and their hospital mortality was 100%.

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ETIOLOGY OF SEVERE COMMUNITY ACQUIRED PNEUMONIA SPANISH MULTICENTRIC STUDY.

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OBJECTIVE:Know the microbiology of severe community acquired pneumonia (SCAP), needing admission to ICU,and the rentativity of diagnostic measures .
DESIGN: Multicentric prospective study
SETTING: 27 Intensive Care Units (ICU)
PATIENTS: 262 patients needing Intensive Care admision
METHODS.Each unit was free to use any of the diagnostic technics studied.
RESULTS.We used telescoping plugged catheter in 111 cases with 62% of negativity.The microorganisms isolated were: *S.pneumoniae* 17% ,GRAM NEGATIVE BACILLI (GNB) 12%,*L pneumophila* 5.5 % and *S aureus* 5 %.We undertook bronchoalveolar lavage in 65 cases with 52.3% of negativity.The most frequently isolated microrganisms were: *Pneumocistis carinii* 12% ,*S .pneumoniae* 11% ,GNB 11% and *S. aureus* 5%.We took pleural effusion culture in 34 cases with 73.5% of negativity.The microorganisms were: *S. pneumoniae* 9%,*L. pneumophila,* GNB and *S aureus* 3% .Blood cultures were taken in 243 cases with 81% of negativity.The microorganisms isolated were *S. Pneumoniae* 10%, BGN 4% and *S aureus* 2%.We carried out serologic analysis in 143 cases with 63% of negativity.We found titers positives a *L. pneumophila* 11%, Viruses 9.8% ,*Micoplasma* 7% and *Chlamydia* 2.8%.We took cultures of tracheal aspirate inmediately after intubation in 198 cases with 40.9% of negativity. The microorganisms isolated were: *S.pneumoniae* 21%,GNB 12%,*S aureus* 6% and *L. pneumophila* 5%,
CONCLUSIONS. The diagnostics methods used presented a frecuency of negativity which varied from 81% in blood cultures to 40.9% in culture of tracheal aspirates immediately after intubation From these results we must establish a range of techniques for the etiological diagnosis.

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URINARY TRACT INFECTION DUE TO *CANDIDA* IN CRITICALLY ILL PATIENTS: A NEGLIGIBLE EVENT ?

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Aim of the present study was to investigate the incidence and evolution of urinary tract infection (UTI) sustained by *Candida* species and the effectiveness of medical treatment. Between March and December 1995 were admitted to ICU 502 patients, of these 189 without previous UTI and receiving urinary catheterization > 48 hours were declared eligible for the protocol. All eligible patients were monitorized collecting urine samples every 96 hours and maintained urinary catheterization over the entire study period. UTI due to *Candida* was defined as isolation of *Candida* species in the urine with leukocyte count > 20 cells/high power field. Age, SAPS and length of stay (LoS) of our population were respectively 56±19 yr., 12± 4 and 13±11days. All positive patients were at random treated with systemic Fluconazol or local irrigation of Amphotericin B. *Candida* was isolated in 32/189 (16%) patients, but only 14/189 (7.4%) had a true UTI due to the fungus, six of them received local irrigation of Amphotericin B (200 ml of Ampho B in sterile water at a concentration of 5-10 mg/L q8h for 3 days) and 8 systemic Fluconazol (300 mg qd for 5 days). Eighteen patients over 32 did not show leukocytes in their urine samples and underwent only the catheter substitution. In only four out of 14 UTI was resolved with disappearance of *Candida* and leukocytes. Two of them were locally treated and the other two received systemic chemotherapy. Five patients died in course of infection and other 5 died with positivity for *Candida* in their urine, but without leukocytes. No death was attributable to UTI or consequent sepsis. Patients randomly assigned to receive fluconazol or local irrigation with amphotericin B did not differ in terms of age, SAPS, LoS, incidence of sepsis and multiple organ failure (MOF). In conclusion, UTI due to *Candida* species in ICU patients with persistent catheterization represents an event whose incidence is not negligible; the effect of local or systemic treatment appears to be comparable, but its effectiveness in eradicating *Candida* seems to be limited. An accurate policy of urinary catheter inserction and management might be recommended in order to control these fungal infections.

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PNEUMOCOCCAL MENINGITIS: EVALUATION OF 54 CASES

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Pneumococcal meningitis (PM) is an infection that still presents high morbidity and mortality, which could be increased with the appearance of antibiotic resistant Streptococcus Pneumoniae. OBJECTIVES: To assess intensive care morbidity and mortality of PM and to define patients (pts) at risk of complicated evolution. PATIENTS AND METHODS: Over a period of 11 years (from March 1985 till March 1996) all the pts with PM (all diagnosed by CSF culture) admitted in our ICU were evaluated retrospectively. In all pts we analyzed: demographic data, underlying disease, APACHE II score, clinical symptoms, treatment, complications and outcome. Statistical analysis was done using BMDP sofware package. RESULTS:A total of 54 pts were studied, 34 males; mean age 56 (16-81); APACHE II score 16,3 ± 7,6; Glasgow Coma Scale (GCS) at admission 11 ± 3,4; 19 (35%) pts suffer from chronic pathology; 5 (9,2%) pts diabetes mellitus (DM), 6 (11,1%) pts had had a previous cranial traumatism. In 29 cases (53,7%) the source of infection was otic. Also in 29 episodes of PM there were bacteriemia. In 82% of pts. on which CT was performed no radiologic abnormalities were shown, 3 pts presented cerebral oedema, 1 pts cerebral infarction and 1 pts a cerebral abscess. Twenty percent presented seizures, 14% hemiparesia, 40,7% respiratory failure, 12,9% shock, 11% renal failure, 3,7% multiple organ failure (MOF). With reference to treatment all pts received Penicillin and/or Third Generation Cephalosporines (TGC) except for 6 pts that received TGC+ Vancomycin. Sixty-five percent of pts received Corticosteroids, 50% Manitol, 2 pts antinflammatory drugs and 18,5% vasoactive drugs. The mean ICU stay was 9,06 days (1-47). Eleven (20,3%) pts died, two of them presented PM relapse (resistant *Streptococcus pneumoniae*). Three pts developed neurological sequelae. Factors associated statistically with unfavourable evolution were the previous chronic pathology, the DM, the use of vasoactive drugs, shock, MOF, the APACHE II score at admission, the GCS at the 48 and 72 hours from admission in the ICU but not the GCS at admission. Age, seizures, bacteriemia, renal failure and coagulation disorders were not statistically significative. CONCLUSIONS: Mortality in PM is high. The most relevant risk factors were: underliying disease, APACHE II score at admission, initial degree of consciousness, shock, use ofvasoactive drugs and MOF.

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ICU-ACQUIRED INFECTIONS IN SPAIN. PREDOMINANT PATHOGENS.

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OBJECTIVES: Evolution surveillance of predominant pathogens causing ICU- acquired infections (ICU- AI) related to medical devices.
DESING: Prospective, multicentre study of ICU-AI: Ventilator asociated pneumonia (VAP), Urinary tract infection (UTI) and Primary Bacteremia (PB), carried out in 30 Spanish ICUs, in two periods: December 1994 and May 1995.
SUBJECTS: All patients (1884 in December and 1794 in May) admitted to ICU for more than 24 hours, up to discharge from ICU, and with a maximun follow up period of 60 days.
METHODS: Infections were defined according to CDC's criteria modified for ICU. We have developed a data collection system by means of the File Maker program. Both periods were compared.
RESULTS: In December 1994, 103 (5,5%) VAPs were found, caused by 133 pathogens, of which the predominant were: Pseudomonas sp 36%, Acinetobacter sp 18%, S aureus 18%, E Coli 11%, Enterobacter sp 7%, S pneumoniae 5%. In May 1995, 108 (6,2%) VAPs and 138 pathogens, Pseudomonas sp 24%, S aureus 19%, H influenza 11%, Acinetobacter sp 10%, E Coli 5%, Klebsiella sp 5%. The UTI in 1994 were 56 (3%) with 65 microorganisms, E Coli 32%, Enterococcus sp 27%, Candidas sp 14%, Ps aeruginosa 10%, Acinetobacter sp 10% and in 1995, 54 (3%) with 64 pathogens, E Coli 25%, Candidas sp 17%, Pseudomonas sp 11%, Enterococcus sp 9,5%. The PB in 1994 were 23 (1,2%) with 34 isolations, S epidermidis 26%, Candida sp 21%, Enterococcus sp 21%, P aeruginosa 13% and in 1995, 14 (0,8%) PB, with 17 pathogens, S epidermidis 29%, Corynebacterium sp 17%, S aureus 12%.
CONCLUSIONS: The incidence of ICU- AI was compareble in both periods. The predominant pathogens in the 3 localisations, remained stable with the exception of Acinetobacter sp which showed a reduction.

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A study of nosocomial bacteraemias on the Intensive Care Unit: 1970-1995

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OBJECTIVES: To identify the focus of infection and organisms responsible for nosocomial bacteraemias on the intensive care unit (ICU).

DESIGN: We have prospectively followed all bacteraemic patients on the ICU since 1970, and compare here results obtained from 1970 to 1984 (Quart. J. Med. 232, 773-779, 1986) and from 1985 to 1995 inclusively.

METHODS: Blood cultures were taken when there was a deterioration in the patients' condition thought to be due to sepsis. Clinical and microbiological details were obtained from all patients with a significant bacteraemia. Urine, sputum, intravascular catheter tips and other relevant samples were sent to the microbiology department to identify the source of infection.

RESULTS: There were 261 bacteraemias between 1970 and 1984, and 189 between 1985 and 1995. The frequency of organisms identified was as follows: **1970-1984**, *Staphylococcus aureus*, 62 (4 methicillin resistant (MRSA)), pseudomonads, 36; *Escherichia coli*, 30; *Klebsiella* spp, 29; Coagulase-negative staphylococci (CNS), 24; *Proteus* spp., 13; *Candida* spp., 13; enterococci, 7; others 47. **1985-1995**, *S. aureus*, 43 (10 MRSA); pseudomonads, 25; *E. coli*, 9; *Klebsiella* spp., 23; CNS, 23; *Proteus* spp., 0; *Candida* spp., 13; enterococci 22; others 31. In the period 1985-1995, 115 of the 193 organisms were identified on an intravascular catheter presumed to be the source of infection. Other sites included wounds, 9; gastrointestinal tract, 4; lower respiratory tract, 4; urinary tract, 4; skin, 3; other, 10; and in 35 cases no focus was found.

CONCLUSIONS. The species and incidence of organisms isolated from blood cultures has remained remarkably constant over the last 25 years with some exceptions, most notably a decrease in *E. coli* (11% to 5%) and *Proteus* spp (5% to 0%) and an increase in enterococci (2.7% to 12%) and MRSA (1.5% to 5.2%). 61% of all bacteraemias resulted from infected intravascular catheters. Of note, the respiratory and urinary tracts were the focus of infection in only 4 occasions each in the last 11 years. The frequent isolation of Gram-negative organisms from endotracheal aspirates does not imply it is the source of bacteraemia. In the majority of cases, the organism was also found on an adjacent jugular or subclavian intravascular catheter.

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CONTINUOUS INFUSION OF VANCOMYCIN FOR SEVERE METHICILLIN-RESISTANT STAPHYLOCOCCAL INFECTIONS (MRSI).

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OBJECTIVES : To compare efficacy and nephrotoxicity of continuous (CIV) versus discontinuous (DIV) infusion of vancomycin in severe MRSI.
DESIGN : Multicenter prospective randomized study. Major end-points were blinded reviewed by an expert committee.
SUBJECT : 160 in-ICU patients, having strong suspiscion of MRSI and a serum creatinine concentration ([creat]) < 200µM/L
METHODS : Patients were assigned to receive CIV (15 mg/kg over 1h followed by 30 mg/kg over 24h to achieve plateau vancomycin serum concentrations of 20-25 mg/L) or DIV (15 mg/kg over 1h twice a day to achieve trough of 10-15 mg/L).
RESULTS : 123 patients (62 DIV, 61 CIV) having proved-MRSI (55 pneumonia, 33 catheter-related infections, 10 bacteriemia, 25 miscellaneous) due to *Staphylococcus aureus* (n = 96) and/or coagulase-negative staphylococcus (n = 30) were qualified. Risk factors (15 vascular and/or valvular prothesis, 37 immunosuppression) and severity of the disease assessed by the Simplified Acute Physiological Score (14 ± 4 vs 14 ± 5) and the Organ System Failure Score (≥ 1 for 78 vs 82%) were well balanced between both groups. Duration of treatment (13 ± 6 vs 13 ± 5 days), doses (25 ± 19 vs 21 ± 12 gr) and associated-antibiotics were comparable in DIV and CIV. Major end-points, which are clinical failure and infection-related mortality at day 10 (22 vs 21% and 14 vs 11%) and at the end of the treatment (18 vs 19% and 15 vs 13%) were in a same proportion in DIV and CIV. This was also true for day5-bacteriological eradication (47 vs 42%), and for overall mortality (34 vs 34%). [creat], comparable before treatment (88 ± 34 vs 98 ± 41 µM/L, p = 0.13), did not increase significantly at the end of the treatment in both groups (98 ± 47 vs 108 ± 72 µM/L, p = 0.38).
CONCLUSION : CIV is an effective and safe alternative for severe MRSI.

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DIFFERENT RATES OF NOSOCOMIAL VENTILATOR ASSOCIATED PNEUMONIA (VAP) WITH HME/FILTERS (HMEF) AND HEATED WIRE HUMIDIFIERS: A PROSPECTIVE, RANDOMIZED TRIAL

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OBJECTIVES: Considerable resources (time, effort, supplies and money) are consumed treating nosocomial VAP. We wondered if altering clinical practice by using a heat moisture exchanger/ bacteria filter (HMEF) instead of a heated humidifier in the ventilator circuit could change the rate of VAP.
DESIGN: Prospective, randomized, non-blinded study which was approved by the Institutional Review Board with a waiver of consent.
SUBJECTS: 200 patients in a 20 bed Trauma Intensive Care Unit.
METHODS: All patients that had not been ventilated elsewhere in the medical center prior to admission randomly received either heated humidifier, or HMEF [Pall BB100]. Ventilator circuits were changed every 7 days, and closed system suction catheters every 3 days. Patients were dropped from the filter arm if either the HMEF required > 3 changes/day, or they were placed on ultra high frequency ventilation. Pneumonia criteria were those of the Centers for Disease Control. Community acquired pneumonia was defined as meeting these criteria in ≤ 3 days, nosocomial pneumonia if positive > 3 days.
RESULTS: The HMEF nosocomial VAP rate was half that of the heated humidifier, while ventilator circuit cost was about 1/3 less.

number of patients	Heated Humidifier n=100	HMEF n=100	p value
comm acq Pn.	20	19	ns
nosocomial Pn.	16	7	< 0.05
n / 1000 vent days			
comm acq Pn.	35	35	ns
nosocomial Pn.	28	13	<0.05
circuit costs: group	$2801.56	$1776.02	<0.05
median cost / pt	$19.32	$7.12	

There were no differences in mean ventilator days between groups: no pneumonia = 2.5 days, community acquired pneumonia = 9.8 days and nosocomial pneumonia = 16.7 days. Six patients were dropped from HMEF: 3 ultra high frequency ventilation, 1 voluminous secretions, 1 pulmonary edema, 1 hemoptysis,. Two had community acquired, and 1 a nosocomial pneumonia. The HMEF was able to be used in more than 94% of the population studied.
CONCLUSIONS: The use of the HMEF (Pall BB100) was associated with a significant reduction in nosocomial VAP rate compared to the conventional heated wire humidifier group. Moreover, disposable ventilator circuit costs were reduced.

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VENTILATOR ASSOCIATED PNEUMONIA(VAP) IN A POLYVALENT ICU: EPIDEMIOLOGY, BACTERIOLOGY AND ANALYSIS OF RISK FACTORS

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OBJECTIVES : To identify risk factors related to VAP, the prevalence of pathogens isolated and their resistance pattern in our ICU.
DESIGN : Prospective study and data collection.
SUBJECTS : 198 patients that required mechanical ventilation (MV) for longer than 48 hours: 76 patients with trauma, 43 neurological disorder, 37 neurosurgical, 30 medical and 12 surgical respectively.
METHODS : 1.Pneumonia diagnosed on the basis of clinical, microbiological and radiological criteria. 2.Potential risk factors identification. 3.Microbiological analysis of bronchial aspirates. 4.Statistical analysis (SPSS and StatCalc of EpiInfo).
RESULTS AND STATISTICAL ANALYSIS : VAP occured in 67 patients, a crude incidence of 33,8% increasing with ICU days and duration of M.V.($p < 0,0001$). Risk factors associated with VAP were estimated using crude Odd Ratios (OR) and their 95% confidence intervals (95% CI): APACHE II > 20 upon admission (OR:3,58; 95%CI:1,57-8,24; $p < 0,001$), MV >10 days (OR : 37,87; 95% CI:9,32 - 2ll,30; $p<0,0001$), prior antibiotic administration > 5 days (OR:5,90; 95% CI:1,84 - 24,62; $p<0,0001$).
Logistic regression analysis demonstrated a relationship of VAP to the length of time in ICU and PaO_2/FiO_2 ratio upon admission, that presents a linear trend statistically significant (x^2 Mantel - Haenszel). Most frequently identified pathogens were Gram(-) bacteria (83,2%) with predominant isolates Acinetobacter sp. and P. aeruginosa resistant to commonly used antimicrobial agents (3rd generation cephalosporins and ciprofloxacin).
CONCLUSION: Our data confirm that PaO_2/FiO_2 ratio and length of ICU stay are important variables for VAP. The predominance of multiresistant Gram(-) bacteria is in contrast with current published studies. Our results also suggest that the risk of developing VAP is not similar in all ICUS. Further risk factors that add to predictive information could be defined.

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IS PROCALCITONIN A MARKER OF NOSOCOMIAL PNEUMONIA IN VENTILATED PATIENTS ?

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Objectives : Diagnosis of nosocomial pneumonia (NP) remains a challenge in mechanical ventilated patients as accuracy of bacterial samplings is controversial. Plasma Procalcitonin (PCT) level as been found increased in ICU patients with bacterial infections independently of calcitonin level. The aim of this study was to test the accuracy of serum and brochoalveolar lavage (BAL) PCT in diagnosing NP.
Subjects : 42 patients were prospectively studied over 5 month period.
Methods : For each patient with suspected NP, protected specimen brush (PSB) and BAL with bacteriological examination were performed. At the same time, we measured PCT, urea and albumin in BAL and plasma. NP was defined by the existence of one or more of the following criteria: 1) PSB ≥ 10^3 cfu/ml with more than 5% infected cells in the direct examination of BAL (BALdir) and culture of BAL (BALc) ≥ 10^4 cfu/ml; 2) lung abscess on chest X-Rays ; 3) pneumonia on histologic examination.
NP was excluded (NP-) in case of : 1) sterile PSB with 0% infected cells in BALdir and BALc ≤ 100 cfu/ml; 2) complete recovery without antibiotics administration ; 3) absence of pneumonia at autopsy. PCT was measured using LUMI test Pro-CT®, Brahms diagnostica, Berlin.
Results : 29 patients had a definite diagnosis (14 NP and 15 NP-). PCT levels in serum (NP : 6.98 ± 12 ng/ml vs NP- : 3.77 ± 6 ng/ml, p=0.98) and BAL (NP: 0.04 ± 0.08 vs NP- : 0.06 ± 0.14, p=1) , even adjusted with dilution factors (urea or albumin ratio), were not able to distinguish between patients with or without NP. BAL total cell and polynuclear were higher in NP ($p < 0.01$)
Conclusion : PCT level in bronchoalvealoar lavage is not an accurate marker for nosocomial pneumonia. PCT is probably not synthetized by alveolar cells in NP.

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PREDICTORS OF MORTALITY IN SEVERE MALARIA.

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INTRODUCTION Severe malaria (SM) is an increasing problem world-wide. With the recent widespread rains in Southern Africa and with the new South African political system, Baragwanath Intensive Care Unit (Bara ICU) (situated in a nonendemic area) is treating many more such cases.
PATIENTS AND METHODS Over a 2 year period 28 cases of SM (clinical or laboratory features compatible with the WHO criteria) were admitted to Bara ICU. From records, clinical and laboratory features of SM were analysed for predictors of mortality. The patients were treated with intravenous quinine and supportive ICU care.
RESULTS Mortality was 8/28 (28,5%). The three pregnant patients died with 100% foetal mortality and the 4 paediatric patients survived. Of the non-survivors 8/8 developed ARDS (defined by worst ALI score > 2.5), 7/8 developed shock requiring inotropic support and 7/8 developed acute renal failure requiring CVVHD. Admission haemoglobin, platelet count, parasite count, and lowest Glasgow Coma Score in the first 24 hours were shown not to be predictors of mortality. Apache II score, base excess and arterial lactate during the first 24 hours of ICU admission correlated with outcome.
CONCLUSION Cerebral disturbance in malaria is not an important determinant of mortality in an intensive care environment when airway care and ventilation are optimised. Base excess and lactate via rapid bedside techology help the clincial assessment. Multi-organ involvement, specifically high APACHE II, in SM has a poor prognosis.

COMPARISON OF SURVIVORS VS NON-SURVIVORS

	SURVIVORS	NON-SURVIVORS	T-test
Base Excess (mmol/l)	-6,1 ± 4,2	-14 ± 6,5	p = 0,0008
Arterial Lactate (mmol/l)	2,19 ± 0,82	4,99 ± 2,70	p = 0,0003
APACHE II Scores	17,5 ± 6,3	26,8 ± 10,4	p = 0,014
Glasgow Coma Score	11,9 ± 4,1	13,3 ± 2,1	p = 0,393
Haemoglobin (gm%)	8,69 ± 3,4	8,46 ± 3,1	p = 0,809
Platelet count (10^9/l)	55,1 ± 29,5	41,4 ± 17,6	p = 0,643
Parasite count (%)	27,8 ± 27,2	17,5 ± 11,5	p = 0,179

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